



Crinoids - Smithsonian Display
A. Sharon

Level I Kindergarten to Fourth Grade

The activities in this section are designed for kindergarten through fourth grade. All activities can be changed to best suit the teachers need. The activities and levels are designed as building blocks. All of the items in Level I correspond in some way and are introductory to the items in Level II.

Activity 1 Geology

JUST A PLAIN OLD ROCK? By Jim Staebler

The Earth is always changing. Some change we all notice such as the changing seasons. Some we won't see unless we looked close before and saw and remembered what there was to see. If we start to pay better attention to the world around us, we might notice more of the changes taking place. Sometimes we need to look closer. Sometimes we need to look at everything over a period of time. Those big rocks at the bottom of the canyon came falling down from the cliff

above. The sand and pebbles on the shore of the lake are arranged in a special way. Where are the tracks we made in this dry stream bed the last time we walked there? It sure seems dryer here the last few years. Maybe we can find out just how dry it has been.

Geologists study Earth looking for changes and trying to understand what the rocks are able

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Scientists have discovered that there are three main ways that rocks form and have thus separated rocks into three main groups.

Just a Plain Old Rock from Page 15

to tell us. We can find fresh mud along the riverbanks after a spring storm. Seashells can be found in rocks. By studying the rocks and the mountains and canyons made up of rocks, geologists have discovered many of the secrets the rocks have to tell. Geologists know Earth is over 4.5 billion years old. That is a lot of time and many, many things have happened. We are beginning to understand why that mountain is over there and how it got there. But there is so much more to discover. If you start studying the rocks, they may speak to you also.

Rocks come in many different colors and can vary in size from ones we can hold in our hands to ones it takes hours to drive across. Some are hard and others we can easily break apart with a hammer. Some are smooth and some are rough. But they all have one thing in common: they are made up of different minerals in different combinations. Minerals are different kinds of atoms combined in a specific manner. With all the different kinds of atoms there are that means we can make up many, many different kinds of minerals and with all those minerals we can make up a lot of different kinds of rocks. Maybe it is a good thing that a relatively few kinds of rocks make up most of the mountains and canyons we see near here and we can study those kinds of rocks first.

Scientists have discovered that there are three main ways that rocks form and have thus separated rocks into three main groups. Scientists like to put things into groups of things that have the same characteristics. The three groups of rocks are igneous, sedimentary and metamorphic.

Igneous rocks form from hot liquid magma that turns into rock as it cools. If it happens below the surface they are called intrusive and if it happens on the surface where we can watch they are called extrusive or volcanic rocks. Talk about exciting and dangerous – nothing like watching volcanoes!

Sedimentary rocks are formed when small or even sometimes large or various sized particles and brought together in some place where they are eventually buried by more and more rock material. This often happens in the deep oceans or along the shallow shore as well as in vast sand dunes. The particles may be cemented together by a kind of chemical that acts as glue or they may be turned into rocks just by all the weight of the rock material they are buried under.

Metamorphic rocks start out as any of the three different kinds of rocks, but then they are changed into a different kind of rock through great heat and pressure deep beneath the surface. Yes one kind of metamorphic rock can become another kind of metamorphic rock. Some

times they look like they have been squeezed or twisted or bent.

When a rock gets to or near the surface it can start to break apart through the actions of water, chemicals, hot and cold, what vegetation is growing in the area. Gradually soils may develop and they are very important because soils are what vegetation grows upon, and vegetation is the base for the animal populations.

But rocks also move! They may fall down from steep cliffs. Little pieces may get blown around by the wind. Rivers and streams can wash them away. When a rock moves it is eroding. One amazing thing you may some day come to see is just how much rock material has been eroded away. When you look at the canyon, match up the layers of rock from one side to the other. That space used to be filled with rock matching those layers. And that is just part of the erosion that has happened here.

If we start to study the layers of rock we can get an idea of how things used to be when each layer formed long, long ago. The Madison Limestone is made of lime material and has some shells in it so we know it formed when there was an ocean here. Now the Madison Limestone makes up the top 700-800 feet of the canyon walls for the entire 50 mile length of the canyon. Now that's a big rock. The Tensleep Sandstone has ripple marks made of sand grains that were formed as a result of deposition by waves in a near shore environment. We can find that exact same kind of ripple marks along our shores today and in fact that is why we know how they were formed that way in the first place.

Perhaps most exciting is studying the different layers in order to learn how the mountains and canyons came about. What do you need to look for when studying the rocks? While visiting Big-horn Canyon will you be able to hear the rocks tell their story?

Rock Building



Science, Language Arts, Speaking and Listening

Standards:	Wyoming Science : Standard 1, Benchmark 6 & 7 Standard 2, Benchmark 1 Wyoming Language Arts: Standard 3, Benchmark 1 through 5 Montana Speaking and Listening: Standard 2, Benchmark 1 & 2 Standard 4, Benchmark 3
Duration:	1 hour to make the rock and talk about the process, one day of good sun to cure the rock
Class Size:	Any, broken into teams

Objectives

At the conclusion of the rock building exercise, students will:

1. Understand the rock building process
2. Understand the element that work together to build a rock

Materials

- Used coffee grounds
- Flour
- Water
- Bowl
- Cookie sheet
- Treasures
- Pan of gravel

Vocabulary

Igneous rocks: are formed as hot liquid magma cools and turns to rock

Sedimentary rocks: are formed when small or even sometimes large or various sized particles and brought together in some place where they are eventually buried by more and more rock material.

Metamorphic rocks: start out as any of the three different kinds of rocks, but then they are changed into a different kind of rock through great heat and pressure deep beneath the surface.

Procedure

1. To symbolize how minerals are forced together to form rocks, combine used coffee grounds and flour into a bowl. There should be twice as much coffee as flour in your rock mixture. Depending on how old the coffee grounds are, they may still retain some of their moisture.
2. Stir water in a little at a time until you get a stiff, sticky, batter-like mixture. Add more flour if the batter isn't sticky. This symbolizes the water of the inland seas that covered Bighorn Canyon.
3. Scoop out handfuls of the mixture and form into balls. At this point you can poke a hole in the ball and add treasures to the center, reshaping it into a ball. Roll the balls through the pan of gravel. Some small, colorful rocks are a nice addition to the gravel. To symbolize the pressures that compress the minerals into rock, push and pull the ball into a rock shape.

Rock Building Cont.



Science, Language Arts, Speaking and Listening

Procedures Cont.:

4. When you are done, put the rocks on a cookie sheet. You can either harden these rocks by cooking them in the oven at 350 degrees or put them in a sunny window for a day or two.
5. When the rocks have hardened, you can hide them around the class room or playground. Have a scavenger hunt and then break them open to discover the treasures inside.

Closure

After building the rocks, discuss how this activity is similar to the way rocks are formed.

1. What caused the shape of the students' rocks?
2. How is that similar to the way rocks are formed?
3. Which of the three sedimentary rocks found in Bighorn Canyon does this one most resemble?

Additional Activities

1. Students could make rock candy.
 2. Conduct a rock scavenger hunt along the State Line Trail looking for rocks with the traits discussed in this activity.
- Remember only take notes or draw what was found.

The Ever Changing Earth



Science, Language Arts, Speaking and Listening

Standards: Wyoming Science: Standard 1, Benchmark 6
Wyoming Language arts: Standard 3, Benchmark 1 through 5
Montana Speaking and Listening: Standard 2, Benchmark 1 & 2
Standard 4, Benchmark 3

Duration: 20 Minutes
Class Size: Any

Objectives

It is easy to study some changes to the world around us, but others are harder to study. For instance, the change of seasons is easy to study. Most people remember the change from winter to summer. However, geologic change is more difficult to study. Changes to the landscape can happen over decades of time or can happen quickly. This activity will illustrate that the earth is always changing. Even though we don't always notice the changes, how do they affect us and the world around us?

Materials

- One small carton of milk from the cafeteria
- 4 different colors of food coloring
- Eye dropper full of dish soap
- Deep sided cookie sheet

Procedure

1. Pour milk into the cookie sheet.
2. Have the students tell you the kinds of things they find on the earth. Animals and plants will be symbolized by a color, rocks and soil by another color, water elements by another color, and weather elements by the last color. Put one drop of food coloring in for each item the students tell you.
3. When they can no longer think of items that make the earth what we know it today, add one drop of dish soap. This will make all of the colors start to swirl together. It will do this for awhile, continually changing. If it starts to slow down you can add another drop of dish soap. It will begin to swirl again.

Closure

1. Discuss how the earth is always changing.
2. How does each element effect change on the earth?
3. How can scientist study these changes?



Crow Tipi Village

A. Wolf

Activity 2

History - The Power of a Story

Trails Through the Years

By Christy Fleming

The Bad Pass Trail, marked by rock cairns, weaves its way along the rugged western edge of Bighorn Canyon, from the mouth of the Shoshone River to the mouth of Grapevine Creek. One may guess from its name that the Bad Pass trail was not an easy trail. It was better than the alternatives of crossing the mountains or the dangers of possibly drowning in the untamed waters of the Bighorn River coursing through the canyon. The Crow told stories of evil spirits that resided in the canyon, serving as an additional deterrent to river travel.

Native people walked and camped along this trail for 10,000 to 12,000 years while traveling to the buffalo plains. Early trappers and traders such as Jim Bridger and Jedediah Smith used it to transport furs to St. Louis, avoiding the dangers of floating the Bighorn River. Later ranchers and settlers used the trail to get to their property on the Dry Head. As the settlers started to use the Bad Pass Trail, foot and horse traffic turned to freight wagons and then to vehicles. This

was still not an easy trip. It was a well known fact by those that drove along the trail, that they should always carry a tire repair kit with them as they were almost guaranteed at least one flat tire along the way.

Today the park road follows closely the original path of the Bad Pass, some times following over the top of it. If this trail could talk it would have years of stories to share. The stories of adventure have now turned to stories of wildlife viewing and recreation. As the years go by more stories will be added and others will study them. Who knows, maybe someday in the future, students will be studying our impact on the Bad Pass Trail.

How the Canyon got its Name



Social Studies, Language Arts, Reading, Speaking and Listening

Standards:	Wyoming Social Studies: Standard 4, Benchmark 1 & 3 Standard 5, Benchmark 4
	Wyoming Language Arts: Standard 1, Benchmark I – B & C Standard 2, Benchmark II – B 1 through 3 Standard 3, Benchmark 1 through 5
	Montana Social Studies: Standard 1, Benchmark 1 & 2 Standard 4, Benchmark 3
	Montana Reading: Standard 4, Benchmark 4
	Montana Speaking and Listening: Standard 2, Benchmark 1 & 2 Standard 3, Benchmark 1 through 4 Standard 4, Benchmark 3
Duration:	On Site Visit - 45 min. walk along part of the Bad Pass Trail
	Off Site Visit – This may need a couple class periods for research and presentation time
Class Size:	Any

Objectives

As students of history, we can learn a lot about different areas from legends and stories that are passed down through generations. After reading *The Legend of Big Metal* students will:

1. Understand how Bighorn Canyon came to be named.
2. Discover other myths, legends, or stories that were behind the naming of other landmarks in their area.
3. Will interview and retell a story told to them by a family member.

Vocabulary

Absaroka: The real name for the Crow. French explorers thought this word meant large black bird which they interpreted as crow.

Myth: Stories of fictions or half truths forming part of the ideology of a society or culture.

Legend: An unverified popular story handed down from earlier times.

Story: The narrating or relating of an event or series of events, either true or fictitious.

Precarious: Dangerously lacking in security or stability.

Perpendicular: At right angles to the horizontal; vertical.

Setting the Stage

Discuss the difference between myth, legend, and stories. How do these stories help us to learn about the history of an area? Can stories change over time?

Procedure:

On Site

1. Listen as the ranger tells stories about the people that lived in Bighorn Canyon.
2. Imagine yourself traveling through Bighorn Canyon as a Native American, a Mountain Man, or early settler and write a journal about what you might have experienced.

Off Site

1. Ask a relative to tell a story about your family and retell it to your class. Discuss why it is historically significant to your family's history.
2. Find a building or landmark that has an interesting name and try to find out how it got its name.

How the Canyon got its Name Cont.



Social Studies, Language Arts, Reading, Speaking and Listening

Closure:

As a class, review the story of Big Metal and how it relates to the stories told either in each student's journal, the stories told to the students by family members, or the stories on how areas were named. Do the stories have any similarities? What is the importance of story telling?

Additional Activities

1. The class could put together a booklet of their family histories.
2. Have students stand in a line. Whisper something in the first student's ear and then have them relay it and see how it turns out in the end. Relate that to how stories can change over time.
3. Teachers could invite a representative from the local historic society to share stories about their area with the students.

The Legend of Big Metal Crow Legend

*But it is the country itself
and the deeply-rooted
history of the people,
who call this land home,
which casts a spell over
those who would let it.
For this is the Bighorn
and as the Bighorn, it
shall endure.*

According to Crow Legend, the name Bighorn must endure, for should the name Bighorn ever leave the water, the Crow people would be no more. Due to the legend of Big Metal, Bighorn Canyon, the water of the lake and the river will forever be called Bighorn.

In the days soon after the Crow came to this area, a boy and his stepfather went hunting. While the boy was looking over the edge of the canyon, the stepfather pushed him. The boy disappeared from view. The cruel stepfather returned to the village and “reported” the incident. There was no point searching. The mother and his relatives mourned.

However, the boy was safe; his fall broken by an outcrop of cedars. There he was on his precarious perch with no possible way of getting out or off the nearly perpendicular wall. Even human help would be impossible. Here he waited, hoped, cried and prayed. On the fourth day his prayers were answered. He heard clicking of hooves and heard a voice saying, “My child, I have heard your cries and I have pity for you. I have come to rescue you. You must do as I tell you and do not be afraid.” A huge Bighorn Sheep came and eased up below him and instructed the boy to get on its back and hold on to its horns. He was told to close his eyes and not to open them until told to do so. And when he opened his eyes, he was on top of the canyon on level ground. There were seven bighorn sheep around him, and one of them spoke and said, “I am the chief of sheep. I am called Big Metal.” Big Metal was a magnificent creature with horns and hooves of glistening metal and the hooves rang like metal when he walked around. He gave the boy his name and powers. In turn the seven sheep gave the boy a power that each possessed; wisdom, sharp eyes, keen hearing, great strength, strong heart and sure-footedness. They then gave him a warning: “We seven rule these Bighorn Mountains. That river down there in the bottom is the Bighorn River. Whatever you do, don’t change its name. It shall be known as the Bighorn River. If you ever change the name of the river, there will be no more Absaroka (Crow). The Absaroka will be no more.”

Other animals then gave the boy “the right to practice their powers by calling upon them.” Among these gifts was knowledge, which was given by the badger. This clever creature taught

the young boy how to construct a sweat lodge and told him to build it when he returned to his village.

Upon seeing the boy return to the village, the stepfather fled as the young boy’s mother wept. Big Metal told his people about the bighorn sheep and gave them the warning which the sheep had given to him. Following the badger’s instructions, Big Metal built the sweat lodge and taught his people how to do the same.

When Big Metal grew into manhood, his people observed that he had “unusual powers – keen eyes, a fine sense of humor, a sharp mind. He was physically very active and strong. . . He became a good warrior.” Big Metal outlived four generations and before he died he told his people, “he desired to be buried next to the Bighorn River, because his fathers, the bighorn sheep, would come for him.”

One day Big Metal wrapped his blanket about himself and died. In accordance with his wishes, Big Metal was buried on the east side of his beloved Bighorn River about two miles above the mouth of Rotten Grass Creek.

Today thousands of visitors come to Bighorn Canyon drawn by the waters of the lake and the river. But it is the country itself and the deeply-rooted history of the people, who call this land home, which casts a spell over those who would let it. For this is the Bighorn and as the Bighorn, it shall endure.

Bad Pass Today, Scavenger Hunt



Student Handout

What makes the Bighorn Canyon Area so Special?

What has changed since the Native Americans and the Mountain Men traveled along the Bad Pass Trail?

Contemplate these questions while traveling through Bighorn Canyon.

Below are a few sites you may see:

1. Bighorn Lake: Bighorn Lake was once a river flowing across a level plain, but over thousands of years the river cut into the earth while the mountains were pushed upwards. The green color of the lake is from the algae in the water.

2. Bighorn Sheep: Nearly lost to this area, the bighorn sheep returned in the early 1970's.

3. Rock Cairns: Rock cairns are rock piles that mark the Bad Pass Trail.

4. Wild Horses: The Pryor Mountain Wild Horse Range was the first in the U.S.

5. State Boundary Signs: Watch for the Wyoming and Montana boundary signs that tell you that you're leaving one state and entering another.

6. Devil Canyon Overlook: From this spot, 1000 feet above Bighorn Lake, you can see the trail tracings of wild animals and look for birds of prey.

7. Tipi Rings: In the canyon area you may be able to find rings of stones that indicate where a tipi once stood. The stones held down the lower edge of the tipi and kept the wind from blowing into the tipi.

8. Cottonwood Trees: Alongside the creeks in the area are the "old growth" cottonwood trees that mark the path of the streams. Because of their deep tap roots, these trees can survive in harsh desert environments.



Pryor Mountain Wild Horses at
Crooked Creek *NPS Photo*

Activity 3 Life Science

Bighorn Sheep and Wild Horses Pete Sawtell

Two of the large animals that you are likely to see in Bighorn Canyon are bighorn sheep and wild horses. These two very different creatures share the land and resources in Bighorn Canyon and in the Pryor Mountains to the west.

Bighorn sheep (*Ovis canadensis*) are one of four native sheep species in North America. It is thought that the ancestors of the bighorn crossed the Bering Land Bridge during the last ice age about 12,000 to 15,000 years ago. These ancient sheep then spread out from Alaska to Mexico and adapted to various environments. The sheep in our area evolved into Rocky Mountain Bighorn Sheep.

Bighorn sheep are sexually dimorphic. This means that there are differences between males and females. For instance, a male or ram can weigh up to 300 lbs, while a female or ewe may only weigh 150 lbs. The rams, have big curled

horns, while the ewes have much shorter horns that curve slightly.

After a six month pregnancy, ewes give birth in the spring to a single lamb. Lambs are born on steep slopes and cliffs called lambing areas, chosen to protect the lambs from predators. Lambs can walk within a few hours and are able to eat solid food within a week. A ewe and her lamb will congregate with other ewes and their young in groups of five to fifteen animals for added protection. These groups stay near the canyon year round.

At the age of 3, young rams leave this group and form bachelor groups of one to four similarly aged rams. The rams summer in the cool Pryor Mountains where vegetation is easy to find. During the rut in the fall, rams return to the canyon to battle and mate.

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Rams battle to prove dominance and to secure a chance to mate. They charge at each other, rearing up onto their hind legs and lowering their heads just before colliding at speeds up to 20 miles per hour. Bighorn rams have a double cranium, a unique adaptation that allows them to withstand the head trauma caused from these battles without serious injury. Their cranium is made up of two layers of skull with a soft, spongy material in-between that acts as a shock absorber for the brain.

The Pryor Mountain Wild Horses *Equus caballus* have a very different past than the bighorn sheep. The ancestors of modern horses were found in North America at the end of the Pleistocene era, the last ice age. They died out and horses continued to live only in the Old World. Then in the 1500's and 1600's, the Spanish brought horses over to the Americas. Some of these horses escaped and formed large herds that roamed the plains of North America. One such herd is the Pryor Mountain herd, which by some accounts has been in the area for about 200 years.

The social structure of the Pryor Mountain wild horses is that of a harem band. A stallion, or mature male, will have a group of one to three mares and their offspring, of which he is the leader. When a harem becomes too large for a stallion to control, other stallions will try to steal his mares. In fact, for every 10 mares, 4 will change harems annually.

Like the sheep, stallions will often battle for the right to mate. Instead of butting heads, horses will rear up on their hind legs and attack each other with their hooves. These mature, 1200 pound stallions will also chase, kick, and bite at their opponents.

The horses have winter and summer ranges similar to the bighorn sheep. In the summer the majority of the horses are found in the higher ranges of Pryor's due to the high availability of food and water. During the late spring and early summer many of the mares will foal after an 11 month pregnancy. In the winter, most of the horses can be found in the lower elevations where there is less snow and more forage.



Collared ewe in lambing area near Devil Canyon Overlook. NPS Photo



Collared ewe near Hillsboro. NPS Photo

Biologist in the Field

By Christy Fleming

Bighorn Canyon has biologists on staff and visiting biologists that study the different animals found in Bighorn Canyon. This is a rewarding job, but also a hard one. To learn about an animal they must observe it. Some elusive animals are captured and fitted with radio collars. Biologists use radio telemetry to track and observe these animals. Some animals are easily found. When biologists find the animal, they sit in one place, sometimes for hours, taking notes on the movement of the animal, social interactions with other animals, or when they defecate. Often biologist will collect fecal samples from animals and can learn if the animal is healthy and what it has been eating. Biologists have recently studied the interspatial relationship between bighorn sheep and wild horses to see if both can survive while sharing their land and resources.

Biologists studying the sheep found that bighorn sheep prefer to live in semi-open areas with rocky terrain that allows many escape routes should a predator attack. They also found that the sheep like to eat grasses and shrubs; noting that most of their year round diet consist of Mountain Mahogany, winterfat, and some juniper. In the observed population, they found that bighorn sheep can live up to 20 years, but the average life expectancy was 10 to 14 years.

In the spring and early summer when the grasses are green, biologist found that a major part of both the horse and sheep diet is grass. Horses eat grass year round but also eat some shrubs like winter fat. Biologists found that although domestic horses have an average life expectancy of about 25 years, due to environmental factors, old age for a Pryor Mountain wild horse is about 16.

Ultimately biologists found that horses and bighorn sheep seem to have different enough diets that they aren't in serious competition with each other. There appears to be enough food and space available to accommodate both species adequately if managed properly.

Bighorn Canyon Habitats, A Biologist for the Day



Science, Language Arts, Art, Speaking and Listening

Standards:	Wyoming Science: Standard 1, Benchmark 1 & 3 Wyoming Language Arts: Standard I, Benchmark B Montana Art: Standard 1, Benchmark 3 Montana Speaking and Listening: Standard 2, Benchmark 1 & 2 Standard 4, Benchmark 3
Duration:	On Site 4 hours, visit a section of the park, do activity Off Site Visit – Watch a video of either horses or sheep and write down behavioral observations.
Class Size:	Any

Objectives

In their study of Bighorn Canyon biology, students will:

1. Identify the habits of horses and sheep.
2. Identify plants that horses and sheep feed on.
3. Describe the habitats of sheep and horses over the course of a year.

Materials

On Site

- Plant identification book to help identify Mountain Mahogany, Winterfat, and Juniper. Photos can also be found on the teacher supplemental disc.
- Notebook and pencil to take notes and do writing assignment
- Sturdy shoes
- Water
- Binoculars

Off Site

- Look at photos on the teacher supplemental disc or search the internet to find photos of Mountain Mahogany, Winterfat, and Juniper .
- Video
- Notebook and pencil to take notes and do writing assignment

Vocabulary

Sexually Dimorphic: is the differences related to the male and female of a species.

Pleistocene: The last ice age, ending about 11,500 years ago.

Ram: is a mature male sheep.

Ewe: is a mature female sheep. (Pronounced “you”)

Lamb: is a baby sheep.

Stallion: is a mature male horse.

Mare: is a mature female horse.

Foal: is a baby horse.

Filly: is a baby female horse.

Colt: is a baby male horse.

Bighorn Canyon Habitats, A Biologist for the Day Cont.



Science, Language Arts, Art, Speaking and Listening

Procedure

On Site

1. Stop at different areas in the park where horses and sheep may be seen.
2. Observe the horses, sheep, or both in their habitat.
3. Take notes as to their actions and interactions; note any “unusual” behaviors.
4. Draw or photograph distinctive markings.
5. Are any of the bighorn sheep collared?

Off Site

1. Discuss the unique features of the horses and the sheep.
2. Watch a movie on horses or sheep.
3. Take notes from the movie as to the animals’ interactions; note any “unusual” behaviors.
4. Draw distinctive markings

Additional Activities

Have a group discussion in class about what you saw. Share your photos, artwork, and field notes with the class.

Who am I?



Science, Language Arts, Art, Speaking and Listening

Standards: Wyoming Science: Standard 1, Benchmark 1 & 3
Wyoming Language Arts: Standard 3, Benchmark 1 through 5
Montana Art: Standard , Benchmark 3
Montana Speaking and Listening: Standard 2, Benchmark 1 & 2
Standard 4, Benchmark 3

Duration: 30 minutes

Class Size: Any

Objectives

In their study of Bighorn Canyon biology, students will be able to identify the animals of Bighorn Canyon by their characteristics.

Materials

- Reference materials
- Examples of animal profiles
- Blank 5" X 8" cards

Setting the Stage

There are several different animals that call Bighorn Canyon home. Some animals stay year round while other migrate through.

Procedure

1. Discuss the diversity Bighorn Canyon's wildlife with the students. This discussion should include the relationships of climate, topography, and vegetation.
2. Each student should select an animal that lives in Bighorn Canyon.
3. Have each student prepare an Animal Profile Card. Instruct students to offer characteristics of the animal in first-person. Read one of the profile card examples.
4. Ask students to draw a picture of the animal on the back of the card or write the name. (For younger students, they could draw what the animal eats, where it sleeps, where it lives, etc. . .)
5. Collect all of the Animal Profile Cards.
6. Break the class into two teams, each with a spokes person.
7. Read the cards aloud to the class. Read a few lines at a time. Stop to let each team guess.
8. While the cards are being read, each team should record the information. When asked each team works together to decide the animal. Flip a coin to see who goes first. Have the students guess the animal described. If they don't get it right, it goes to the next group. If the second group doesn't get it, read more from the card. This will go back and forth until one team gets it correct. That team will receive a point. The team with the most points in the end wins.

Examples of Animal Profile Cards



Student Handout

1. I like dry, warm country in the summer.
2. I have 32 teeth.
3. I don't live in forests.
4. I have a white rump patch.
5. I weigh about 130 pounds.
6. I eat grasses and sagebrush.
7. My young are called fawns.
8. Both males and females have horns.
9. I can run over 45 miles per hour for long distances.
10. I am misnamed for long-horned grazing animals of Africa and Asia.

I am a pronghorn.

1. I like to live in semi-open rocky terrain.
2. I can climb sheer cliffs.
3. I can weigh up to 300 pounds.
4. I use my big curly horns to battle for the right to mate.
5. Both males and females have horns.
6. I eat grasses and shrubs. Mountain Mahogany, winterfat and juniper are some of my favorites.
7. I go to live with other individuals my same age at age three.
8. I have a double cranium.
9. I can live up to 20 years.
10. My ancestors crossed the Bering Land Bridge during the last ice age.

I am a bighorn sheep, ram.

1. In the summer, I like to stay on the Pryor Mountains and in the winter, come down to the lower elevations.
2. I eat mainly grasses, but sometimes I like to eat shrubs.
3. I can weigh up to 1200 pounds.
4. I believe strongly in staying in a group.
5. I will bite and kick other that try to break up my family.
6. I can live to be 16 years old.
7. The BLM manages my population.
8. My ancestors went extinct during the last ice age.
9. The Spanish brought my kind to the Americas in the 1500 and 1600s.
10. I have zebra stripes on my legs and a dorsal stripe down my back.

I am a Pryor Mountain wild horse.